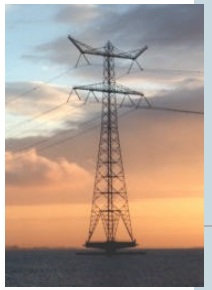
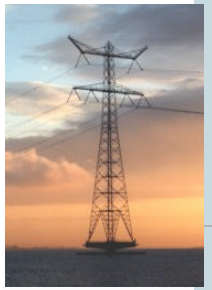


RTO West Congestion Management Proposal

Agenda

A. Introduction
B. Definitions and Key concepts (Sections 2 & 3)
C. Cataloging Pre-Existing Contracts (Sections 3 & 4)
D. FTO Auction (Section 5)
E. Scheduling (Section 6/Exhibit D)
F. Schedule Adjustments and Deadbands (Section 6)
G. Settlement (Section 6)
H. Long Term Rights (Section 7)
I. Seams (Section 8)
J. Comprehensive Review (Section 9)



A. Introduction

Caveats

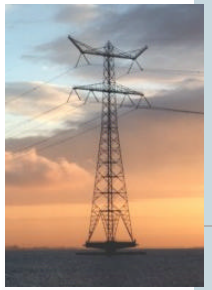
- Work in Progress; Not a consensus proposal
- Still unresolved issues
- No one utility agrees with everything in the proposal
- This is a high-level overview

Why Two Proposals?

- --Reflects alternative ideas
- --Insufficient time to integrate them into one proposal

Presentation will focus on commonalities

- Most of the differences (if not all) are in the details



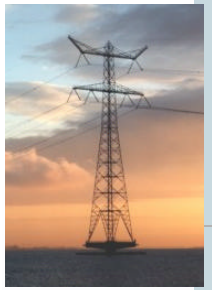
Goals of the Congestion Management Proposal

Provide for service to load under pre-existing contracts without an increase in congestion costs to pre-existing rights holders.

No cost shifts to pre-existing contract rights holders.

Use market principles to manage congestion.

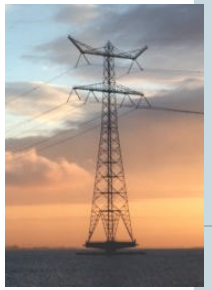
Allow others without transmission rights to have access to the system—at their expense and risk.



B. Definitions
Definition of CTR

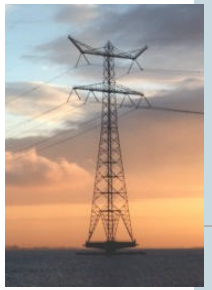
Catalogued Transmission Right

"A CTR entitles the holder to receive a credit equal to whatever congestion charges are associated with a schedule submitted on its behalf that is consistent with its catalogued rights."



Example

Customer Bill	
Cost of Congestion	$XXX
CTR Credit	($XXX)
Net Cost to CTR Holder	-0-

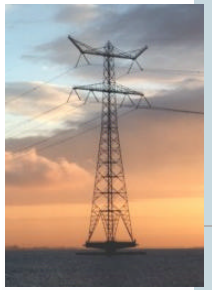


Definition of FTO

FTO

"An FTO is the right of the holder to receive a credit from RTO West equal to the value of the right calculated by multiplying the congestion price at the points of injection less the congestion price at the points of withdrawal by the quantity of power in megawatts described in the FTO for one hour."

An FTO is an option to receive a credit, not an obligation to pay or receive cash; the value is either positive or zero.



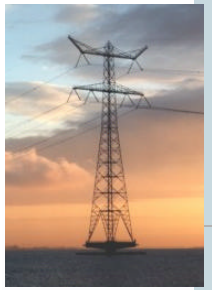
Use of An FTO

An FTO credit on A to B may be used to offset congestion costs on any schedule, e.g., schedule C to D; one need not schedule on A to B to use an FTO from A to B.

Purpose: maximize the hedging capacity of existing FTOs by allowing imperfect hedges

Notes:

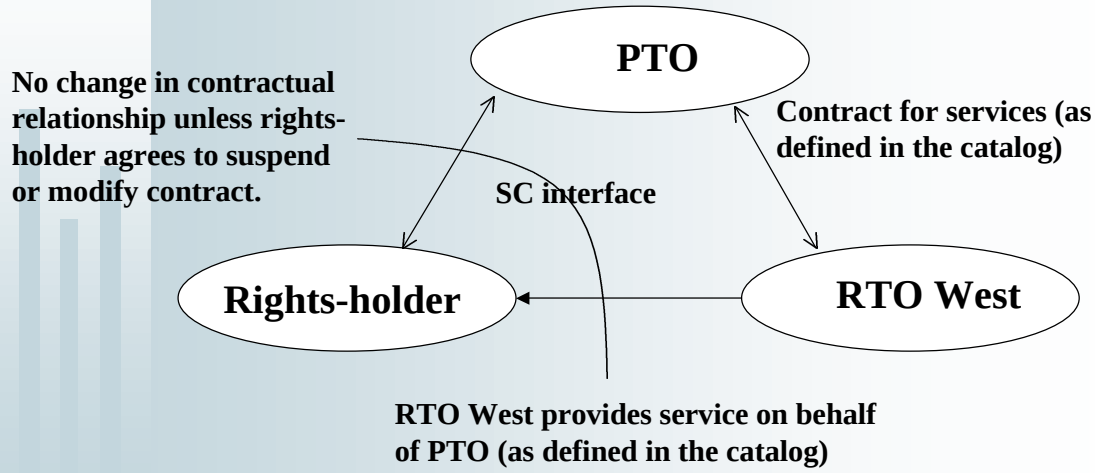
1. Not sure this is the best policy.
2. It is not resolved whether injection and withdrawal points should be limited to buses, or whether “nodes” (combination of busses), or “hubs” (pricing points used to facilitate trading) can be used as well.

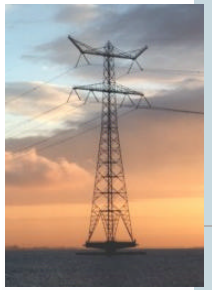


C. Cataloging Pre-Existing Contracts (Sections 3 & 4)

Main Points:

Relationship Between Rights-holder, PTO & RTO West





Main Points:

Catalog of Obligations and Assets (Balance Sheet)

Updated for changes in contract terms, tariffs, business practices, and load-growth

Updated for changes in facilities, tools, or other contractual or procedural rights

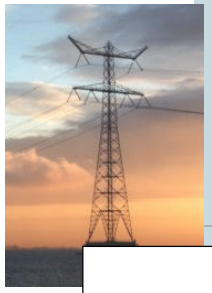
Obligations that the PTO wants RTO West to meet

Assets and tools that the PTO provides RTO West to meet the obligation

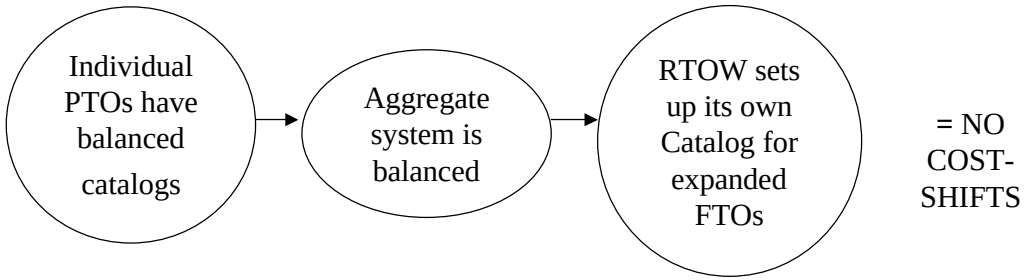
RTO West

Its OK if assets exceed obligation (RTO West will use ATC to generate FTOs)

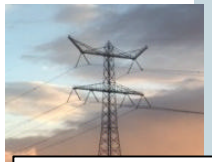
RTO West evaluates "package" to assure that assets can meet obligations



Objective – no cost shifts

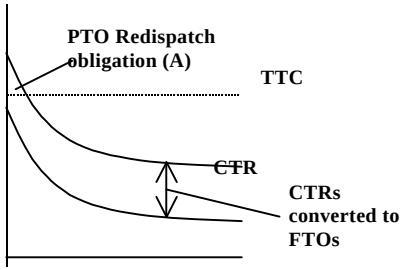


- **Balance sheet check of PTOs' catalog of assets and obligations are done on a prospective basis.**
- **RTOW may sell FTOs beyond ATC, in that event RTOW will maintain its catalog separately.**
- **Since all catalogs are in balance, RTOW will not have to track operational congestion.**

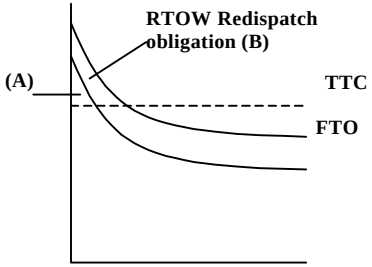


Creating FTOs

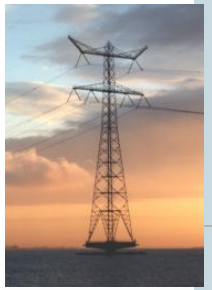
FTOs – where do they come from?



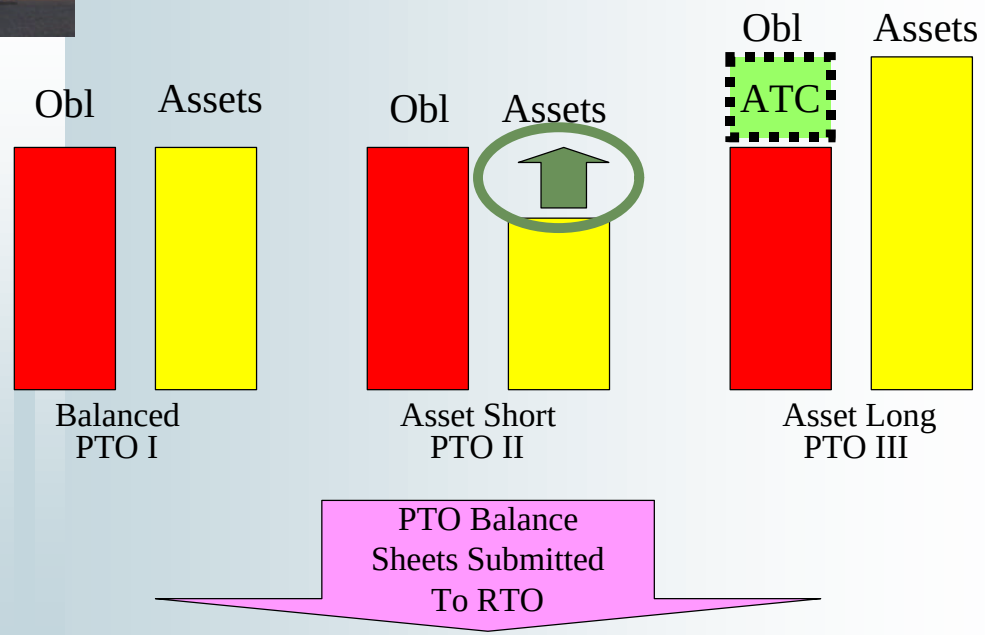
- **CTR use within a month is not uniform. There may be some PTO redispatch needed to make catalog balance.**
- **Some CTRs may be converted to FTOs**
- **Regardless of CTRs converted to FTOs, the PTO would provide RTOW with sufficient tools to take care of area A (in this example by redispatch)**

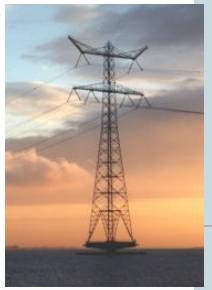


- **RTOW's sale of an FTO has the same effect as raising the CTR line by the MWs sold as FTOs.**
- **In this example RTOW has increased the probability and magnitude of redispatch needed to meet CTRs and FTOs.**
- **To prevent cost shifts RTOW would create a separate catalog of the FTOs sold and the additional actions above ATC to be taken to make good on the FTOs.**



PTO Catalog Balance Sheets



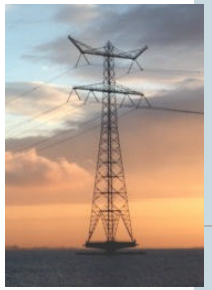


Assets

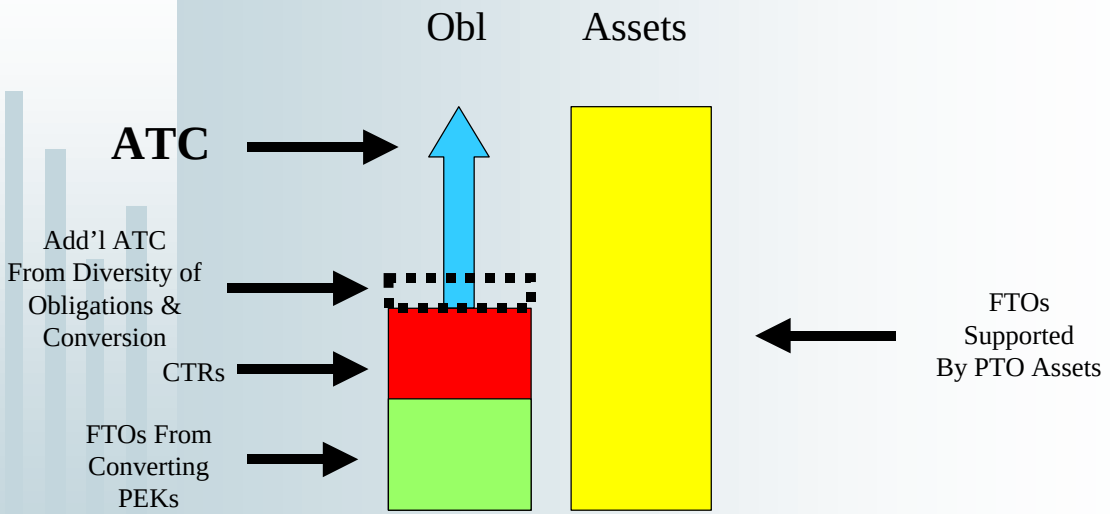
•Assets in this context means physical (poles and wires) as well as contractual or operational rights (curtailment, redispatch, or RAS).

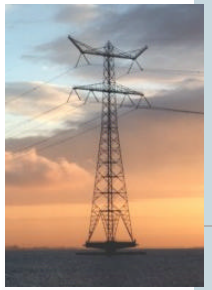
•The combination of all PTOs' assets plus RTO West's assets must be sufficient to support the sum of all CTRs and FTOs.

•The RTO West catalog assures all PTOs that their assets will not be leaned on to support new FTOs sold by RTO West (no cost shifts).

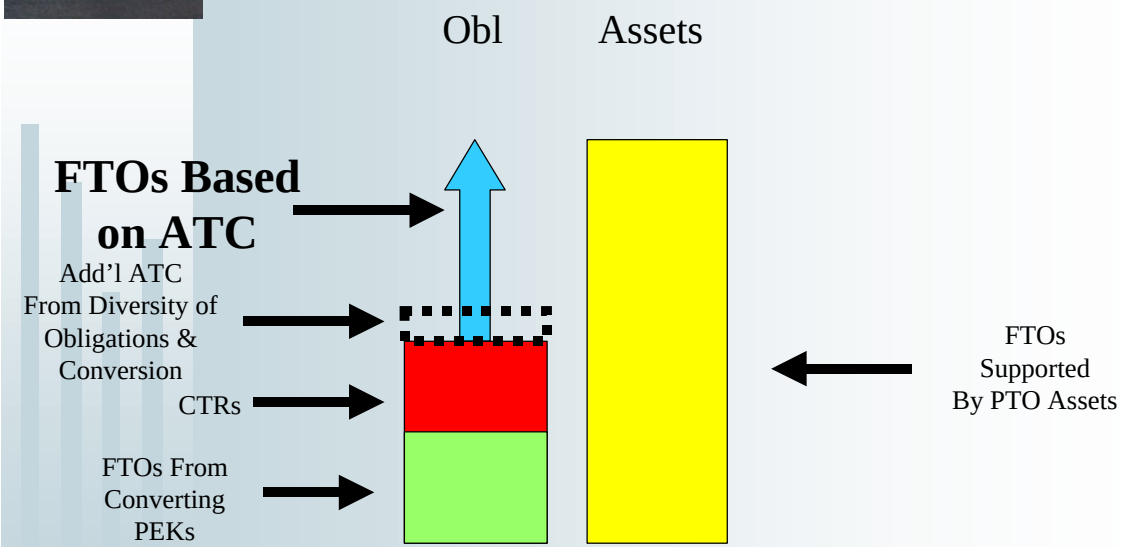


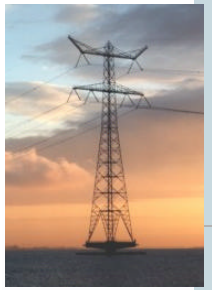
RTO West Balance Sheet



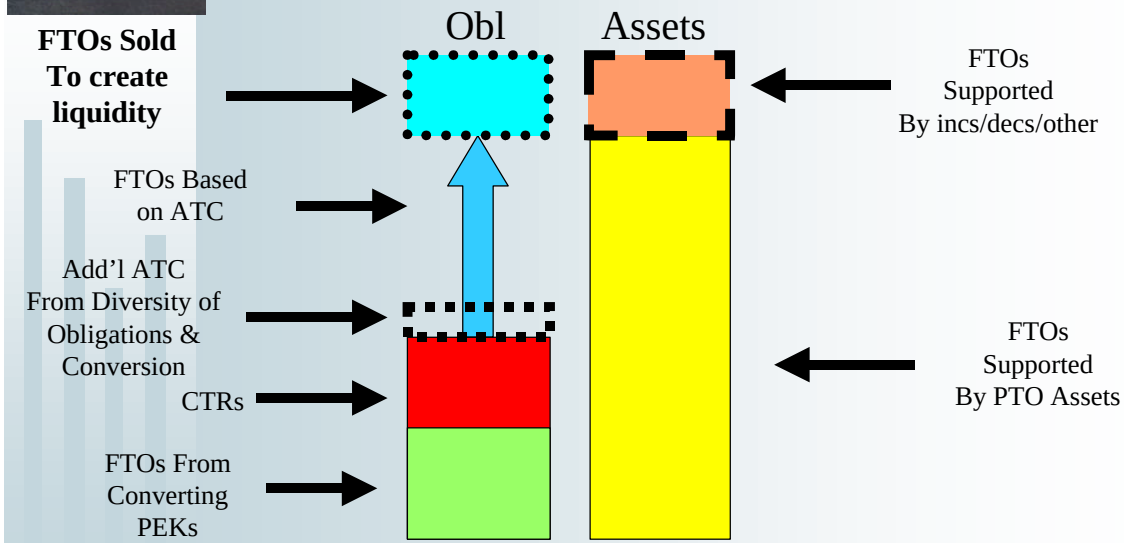


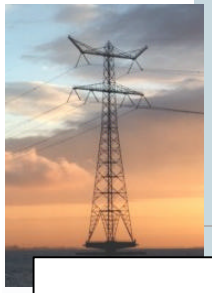
RTO West Balance Sheet— Selling FTOs against ATC





RTO West Sells FTOs Not Based on PTO Assets



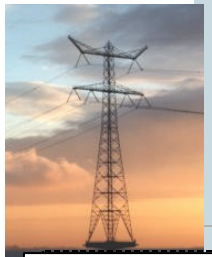


Liquidity Benefits of Conversion

Benefits to Liquidity from converting a CTR to an FTO

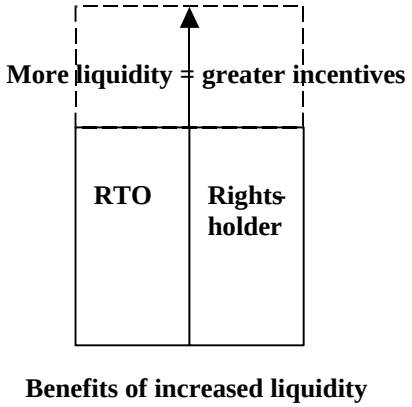
Indirect benefit – Lock-down optionallity
Direct benefit – FTOs are tradable

- **At times the indirect benefit may exceed the direct benefit.**
- **The indirect benefits may be achieved in ways other than converting the CTR to an FTO.**
- **The rights rights-holder reaps the benefits of the direct benefit by retaining the revenues.**
- **Compensation for indirect benefits should be in proportion to the liquidity benefits achieved.**

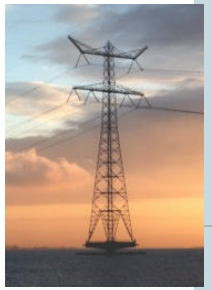


Incentives

Incentives to increase liquidity

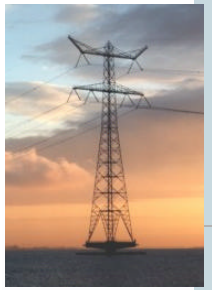


- **Benefits of increased liquidity should be shared between RTO West and those giving up their optionallity.**
- **Incentives should be tied to the improvement in liquidity.**
- **Incentives need not be limited to conversions.**
- **Costs of incentives should not be on rights-holders or their PTOs.**



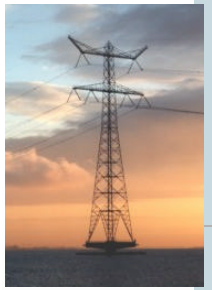
D. FTO Auction (Section 5)

- The RTO will recognize diversity and flexibility across contracts and across PTOs.
- It will continually assess how much transmission capacity it will need to meet all expected schedules and make a judgment about how much remaining capacity there is on the system (consistent with expected outages and seasonal operating restrictions).
- It will auction all of the remaining capacity (ATC) as Financial Transmission Options, but will not unilaterally limit Catalogued Transmission Rights' flexibility to "create" ATC.



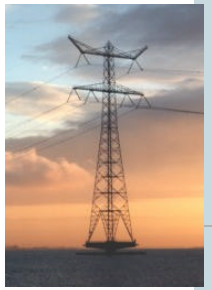
"Judgement" on Remaining Capacity

- The RTO takes into account:
  - The PTO obligations for pre-existing contracts as described in the cataolgues (I.e. CTRs).
  - The FTOs awarded for converted contracts.
  - The FTOs already sold in previous auctions.
  - The historical patterns of use for CTRs and FTOs.
  - Seasonal patterns and outage information.
- The RTO estimates the additional (incremental) congestion caused by releasing additional FTOs in a future auction.



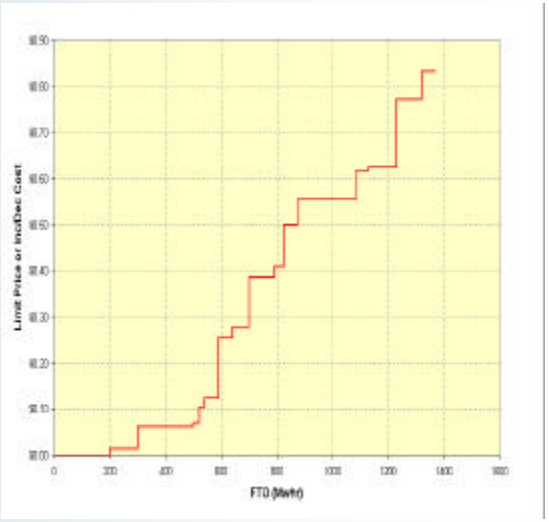
"Judgement" on Remaining Capacity

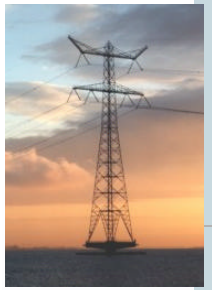
- The RTO accepts the risk that auctioning additional FTOs will lead to increased congestion costs.
- The more FTOs auctioned, the greater the risk of congestion -- and therefore the greater the cost accumulated over the life of the FTO.
- The RTO will not sell FTOs at a loss!
- The RTO will sell FTOs to all bidders provided their bids provide revenue that is greater than or equal to the resulting congestion costs.



Simple Example -- Building a Supply Curve

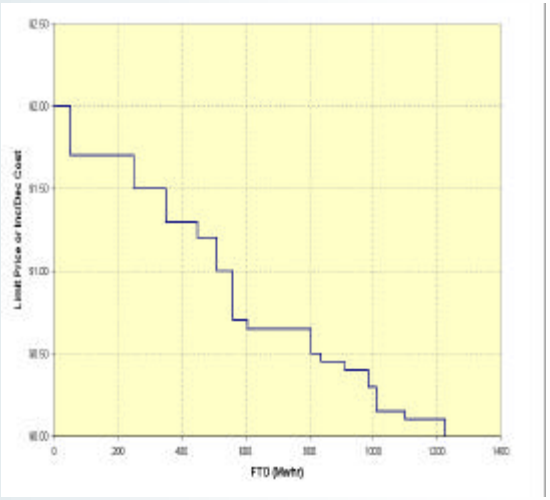
- The RTO projects the incremental increase in congestion for each additional FTO.
- The RTO solicits inc / dec bids (or uses historical costs data) to translate congestion into costs.
- Congestion costs used as the cost of "supply".

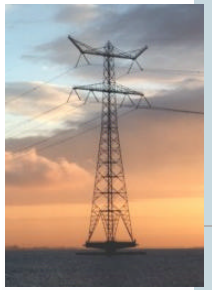




Simple Example -- Building a Demand Curve

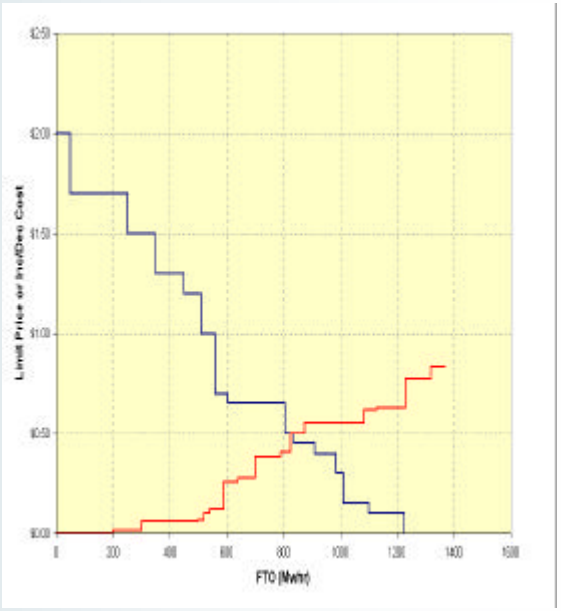
- The auction bids are ordered by descending "limit price".

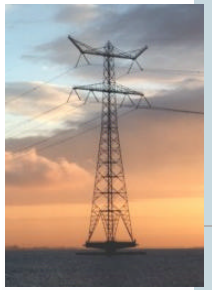




Simple Example -- The Supply-Demand Curve

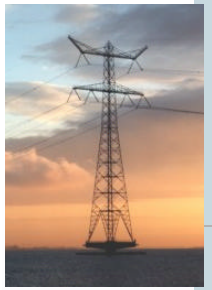
- The intersection of the two curves identifies the price that bidders pay for the FTOs (assuming marginal incremental price)
- The intersection also identifies the number of FTOs that the RTO can sell and break even (at worst).
- Inc / Dec payments might be "as bid."





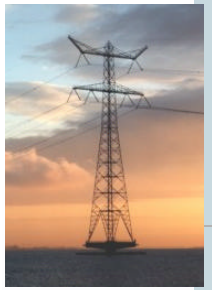
Auction Attributes

- Auctions held for FTO “strips” of various lengths (e.g. one day, one week, one month, on-peak, off-peak, etc.).
- Longer “strips” auctioned before shorter “strips”.
- Intermediate auction results with the current bids are posted for everyone to see; bidders are allowed to add, delete, or modify their bids, and the results are updated promptly
- Auction closes at preset time, and final results are posted.
- Purchase price for FTOs is based on the marginal clearing price. Inc/Dec payments may be “as bid” or marginal clearing price.
- Auction rules need further development.



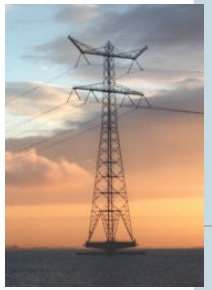
FTO Interdependencies Complicate the Problem

- The “bouquet” of FTOs released for all paths must fit within the physical constraints of the system. FTOs released through the auctions must be simultaneously feasible with the CTRs, converted FTOs, and previously auctioned FTOs.
- The number of FTOs auctioned off on one path will affect the number that can be auctioned off on other paths.
- Generators will bid in both incs and decs, which can be paired up with others to form inc / dec combinations of widely ranging effectiveness across many paths. Flagging a particular inc / dec pair for use against a particular path has side effects on other paths and removes these generators from consideration for other paths.



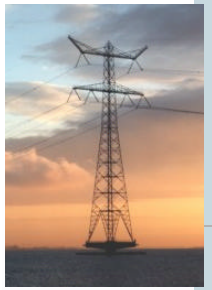
Resolving the Interdependent Auctions

- Rather than being a number of independent path-by-path auctions, the RTO faces a heavily interlaced set of auctions.
  - –FTO auctions for all paths held simultaneously.
  - –Interdependencies tracked throughout the FTO auctions.
  - –FTO auction results must fit within the system's physical constraints.
  - –Decisions on how many FTOs to sell on which paths guided by the goal of awarding FTOs to the bidders who put the highest value on them.



"Segmenting" FTOs

- How can a FTO for A to C be converted into an FTO from A to B and an FTO from B to C.
- Allow FTO holders to also sell rights into the RTO's auction.
  - "Segmentation" is accomplished by selling the A to C FTO and buying A to B and B to C FTOs.
  - The net cost (or net revenue) from doing so will be observable in the intermediate auction results.
  - Since the auction process is already taking simultaneous feasibility into account, no additional testing is required.



Managing Revenue/Cost Imbalance

- Because the RTO can not be expected to predict congestion costs with 100% accuracy, there is bound to be some difference between auction revenues and congestion costs.
- The RTO will adjust the risk factors included in predictions of congestion costs in order to move the accumulated difference back towards balanace.
- The balance might be revenue neutrality or possibly some RTO net revenue requirement.

E. Scheduling (Section 6/Exhibit D) F. Deadbands; G. Settlement

Scheduling Process

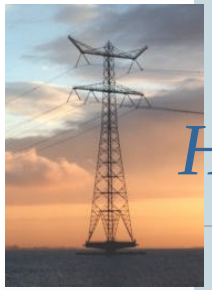
- A strawman proposal in Section 6 and Exhibit D

Deadbands

- General principles are described in text
- More detailed proposal to follow

Settlement not resolved

- 2-step
- 1-step



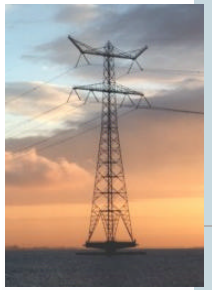
H. Long Term Rights (Section 7)

LT Rights (FTOs) based on unemcumbered ATC

LT Rights (FTOs) based on agreeing to pay redispatch costs over the life of the LT right

LT Rights (FTOs) based on agreeing to pay to upgrade the system.

Note: In any of these cases, the LT Right would result in FTOs over the life of the right as though it were a Pre-Existing Contract

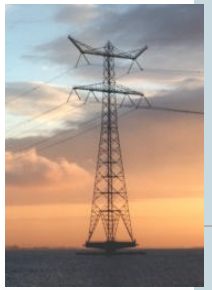


I. Seams (Section 8)

Interregional Seams Issues

- Seams Steering Group—Western Interconnection

Nested Control Areas Issues

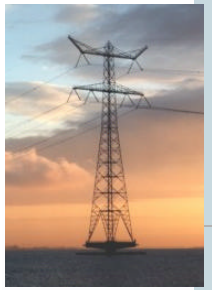


J. Comprehensive Review (Section 9)

RTO West will operate under a philosophy of "continuous improvement" and need not wait to fix problems it sees.

At the end of three years, RTO West will conduct a comprehensive review of congestion management.

There is no "sunset."



Questions?